

# Meningitis

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## What is meningitis?

Meningitis is an infection of the tissue (called the “meninges”) that surrounds the brain and spinal cord.

## What causes meningitis?

Many different kinds of viruses and bacteria (germs) can cause meningitis. A sample of spinal fluid, usually collected by a spinal tap, is needed to find out if someone has meningitis and to see what caused it.

## What kinds of bacteria can cause meningitis?

*Neisseria meningitidis* are bacteria that can cause illness in people of any age. At any time, about 5-15% of people have these bacteria in their throats or noses without getting sick. The bacteria are spread through saliva (spit) during kissing, sharing of food, drinks or cigarettes, and by close contact with infected people who are sneezing or coughing. People who have come in close contact with the saliva of a person with meningitis from this type of bacteria may have to get antibiotics (medicine) for protection. Meningitis caused by these bacteria is called “meningococcal.” There are vaccines, which can be used to help prevent this kind of meningitis.

*Haemophilus influenzae* type b bacteria, called Hib, can also cause meningitis. There is a vaccine called “Hib vaccine” that prevents infants and young children from getting Hib disease. Most adults are resistant to this type of meningitis, and thanks to the vaccine, most children under 5 years of age are protected. Certain people who have come in close contact with the saliva of a person with meningitis from this type of bacteria may have to get an antibiotic for protection.

*Streptococcus pneumoniae* are bacteria that cause lung and ear infections but can also cause “pneumococcal” meningitis. These bacteria are usually found in the throat. Most people who have these bacteria in their throats stay healthy. However, people with chronic medical problems or with weakened immune systems, and those who are very young or very old, are at higher risk for getting pneumococcal meningitis. Meningitis caused by *Streptococcus pneumoniae* is not spread from person-to-person. People in close contact with someone who has pneumococcal meningitis do not need to get antibiotics.

Other bacteria can also cause meningitis, but meningitis from these other bacteria is much less common and usually not contagious.

## What about viruses?

Viral meningitis, also called **aseptic meningitis**, is much more common than bacterial meningitis. A group of viruses called *enteroviruses* is the most common cause of viral meningitis. These viruses are found in the throat and feces (stool) of infected people. The virus is most likely to be spread when people do not wash their hands after using the toilet or changing a diaper or soiled sheets, then touch their own mouths, prepare food for others, or touch others with their contaminated hands. These viruses can also be spread by the kind of close face-to-face contact that is common in families.



Many enteroviruses don't cause people to feel very sick. Others may cause only mild diarrhea or vomiting. People with viral meningitis are usually less sick than people with bacterial meningitis. They usually get better on their own. People who are close contacts of viral meningitis patients do not need to be treated with antibiotics. However, they should wash their hands often with soap and warm water or use alcohol-based hand rubs or gels to stop the spread of these viruses. There are usually more cases of viral meningitis in the late summer and early fall.

## What are the symptoms of meningitis?

Symptoms of meningitis may appear suddenly. Fever, severe and constant headache, stiff neck or neck pain, nausea and vomiting, and rash can all be signs of meningitis. Changes in behavior such as confusion, sleepiness, and trouble waking up can also be important symptoms. In some infants, the only signs of meningitis may be crankiness or tiredness and poor feeding. Babies with meningitis usually run a fever, but not always. Anyone who has or observes these symptoms should contact a health care provider right away.

## How is meningitis spread?

Many of the viruses that cause meningitis are spread through saliva (spit) or feces (stool). The bacteria that can cause meningitis are usually spread from person-to-person through contact with infected saliva. Most people may already have immunity (natural protection) against many of these germs.

## How can meningitis be prevented?

If a person is exposed to the saliva of someone with meningitis caused by certain types of bacteria, public health officials or your health care provider may recommend an antibiotic to prevent disease. Frequent handwashing with soap and water or use of alcohol-based hand rubs or gels can help stop the spread of many viruses and bacteria. Not sharing food, drinks, or eating utensils with other people can also help stop the spread of germs.

There are 5 vaccines that can help prevent meningitis:

- ***Haemophilus influenzae* (Hib) vaccine** is usually given at 2, 4, 6 and between 12 and 15 months of age. The total number of doses depends on the age at which the series was begun. Children over 5 years of age usually do not need this vaccine. But, some older children or adults with special health conditions should get it.
- **Pneumococcal conjugate vaccine 13-valent (PCV13)** is recommended for all children less than 24 months old and in certain high-risk children between the ages of 24 and 59 months. It is usually given at 2, 4, 6, and between 12 and 15 months of age. The total number of doses depends on the age at which the series was begun.
- **Pneumococcal polysaccharide vaccine 23-valent (PPV23)** is used in high-risk individuals 2 years of age or older. (High-risk children less than 5 years of age should also receive PCV13.) This vaccine is also recommended for everyone 65 years of age and older.
- **Meningococcal polysaccharide vaccine** protects against 4 types of the 13 serogroups (subgroups) of *N. meningitidis* that cause serious disease. It is licensed for use in people 2



years of age and older. Meningococcal vaccine is thought to provide protection for approximately 5 years.

- **Meningococcal conjugate vaccine** also protects against 4 types of the 13 serogroups (subgroups) of *N. meningitidis* that cause serious disease. It is approved for use in people 11-55 years of age. Meningococcal vaccine is thought to provide protection for approximately 5 years.

Meningococcal vaccine is recommended for children 11-12 years of age. Now, students 16-18 years of age should receive a booster dose or their first dose if they have not yet been vaccinated. College freshman and other newly enrolled college students living in dormitories who are not yet vaccinated are also recommended to receive meningococcal vaccine. Meningococcal vaccine and booster doses are recommended for high-risk groups including anyone with a damaged spleen or whose spleen has been removed, those with persistent complement component deficiency (an inherited immune disorder), HIV infection, those traveling to countries where meningococcal disease is very common, microbiologists and people who may have been exposed to meningococcal disease during an outbreak.

### Where can I get more information about meningitis?

- Your health care provider
- The Massachusetts Department of Public Health, Division of Epidemiology and Immunization at (617) 983-6800 or toll-free at (888) 658-2850 or on the MDPH website at <http://www.mass.gov/dph>
- Your local health department (listed in the phone book under government)

